# Online classroom engagement: A Mixed-Method Exploration of Effective Engagement Strategies of Online Classrooms in the College of Education During COVID-19

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## Abstract

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The COVID-19 pandemic has influenced the idea of classroom teaching in many ways, and the notion of online learning becomes more popular as teachers and students both find themselves benefiting from this learning experience. Since 2020, studies about self-efficacy, digital literacy, and online learning curricula development have promoted the quality of online learning. However, the popularity of online learning came with a multitude of issues about recreating "the classroom engagement" between students and instructors, resulting in a general decrease in student learning enthusiasm for attending schools (Elshareif & Mohamed, 2021).

In this paper, I aimed to address the problem of forming a more engaging and effective online learning environment in the higher education setting, and I used the online learning experience at the University of Washington (UW) as the reference. I conducted mixed-method research to collect, analyze, and discuss the online learning engagement at UW's COVID-19 remote instruction through students and faculty's experiences. Data gathered from a multitude of sources revealed that both students and faculty at UW had positive experiences and attitudes

about their online learning engagement during their online instruction, but they also agreed upon needing more robust improvement over the differentiated online engagement strategy in both synchronous and asynchronous environments, supports for students and faculty's online learning effectiveness, and general increase over the digital literacy. This paper provides an authentic record of online learning during the COVID-19 pandemic for future research. It also urges higher education faculty to embrace the opportunity for improving, establishing, and researching effective online engagement methods in promoting a more inclusive and less intimidating environment that could benefit students in their future online learning endeavors.

## Acknowledgment

Completing this thesis took much longer than I anticipated before I started the project in Spring 2022. Starting from dealing with the endless confusion over having or not having online classes for two semesters of my graduate studies, I cannot imagine that this small project became a year-long research that expanded through different classes and workshops with a diverse participant group. Gathering and analyzing obtained information all by myself was an enormous project, and gladly, I completed most of those difficult tasks before giving myself extra time to complete this thesis.

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# Introduction

During two years of unpredictable and fluctuating public health advisories and policies caused the COVID-19 pandemic, the education sector has received significant attention in the discussion of the new norms of the COVID-19 pandemic. From March 2020 to the end of 2022, educational institutions in the United States experienced multiple shutdowns of their campuses and established "emergency remote teaching" or ERT (Hodges et al., 2020) – using online education as the mean of employing "remote learning" via synchronous video streaming or conference – throughout much of the pandemic. As the situation of the pandemic made promising developments in 2021, many institutions, including the University of Washington, loosened their policies of ERT and resumed in-person learning for the Fall 2021 semesters or quarters (University of Washington, 2022). Yet, a new development of the pandemic forced the University of Washington to initiate another ERT in January 2022, making all instructions online for another month; this announcement came out two weeks before the new quarter started (ibid.). This sudden change made it hard for students and instructors to adapt, and all stakeholders once again had to use online learning to address their academic duties temporarily. This brief description, although it is not representative of all higher education institutions across the country, may oversimplify the confused and ever-changing nature of COVID-19 responses within educational institutions.

Although the COVID-19 pandemic had officially ended, the implementation, discussion, and debate of online learning continue to be one of the most popular topics in the education sector. Multiple higher education institutions have started allocating more resources and accommodations to make online learning and courses more accessible, and remote learning

options become more frequent and welcomed. As online learning continues to coexist with the traditional classroom environment, many scholars and researchers call for deeper understanding and suggestions about how online learning environments can be improved to invite students and teachers to make engagement more effective, especially viewing online education's effectiveness through the experience, personal recounts of who have experienced, and perspective of forced remote learning during COVID-19 pandemic. Hence, the idea of making research about possible improvements in online learning was created.

## Statement of the Problem

The lasting impact of subpar remote learning during the pandemic revealed a huge academic and socioeconomic gap that would take years to mitigate (Anderson, 2022). It should be noted that online learning is not designed for everyone – it is possible that students and teachers still prefer the traditional classroom setting and regard online learning as an alternative delivery of the traditional learning experience, and the infrastructure needed for mass online learning requires rich socioeconomic resources and policies to sustain (Lockee, 2021; Office of Educational Technology, u.d.). However, I believe that the potential of online education has its roots in how teachers and students could utilize and embrace the accessibility and resources available for engaging educational content, hence online learning can become equal to or beyond the reach of traditional classroom settings. On the other hand, both students and teachers who participated in this research at the University of Washington are accustomed to using remote learning, therefore this research and experiment is useful in discovering the benefit and best approach for online learning that will benefit a wider audience. For these reasons, I took a deeper look into the following question: How could higher education faculty improve students'

classroom engagement of learning materials in online education? To what degree do students and faculty agree upon factors that influence their learning/teaching experience during their online engagement? How would higher education institutions support their faculty to address concerns and sustain actions and improvements in building good, engaging online learning environment for all participants?

## Literature Review

### An Overview of Online Remote Learning in Higher Education During COVID-19

The online learning modality is not a completely new concept for students and educators to digest in recent years. The integration of online learning into K-12 education started as early as 2001 when several online-only high schools started the exploration of such education methods (Vail, 2001). However, the start of online learning in higher education started as early as the 1990s (Kentnor, 2015) when the University of Phoenix became the first institution to launch a fully online collegiate institution that offered degree programs, followed by Jones International University as the first accredited and fully web-based university (OnlineSchools.org, 2022).

Unfortunately, the COVID-19 pandemic made the abrupt transition to online learning among educational institutions. Several universities and non-profit higher education institutions started their experimentations in the online learning model as free open lectures and paid online courses (OnlineSchools.org, 2022); however, a previous research indicated that less than 5% of college budget spending went into the development of educational technology service and communication infrastructure, showing a less-prepared state of colleges in introducing online learning in a mass scale (Lang et al., 2018). In the Fall of 2019, about a third of college students at undergraduate or graduate levels in the U.S. had the experience of participating in full or

partially remote learning in their institutions, but less than a fifth of the total enrollment was fully online degree (National Center for Education Statistics, 2020). For the traditional public universities or private non-profit institutions, this sudden transition from face-to-face education to online learning only happened in a matter of weeks: such a sudden transition made learners and educators experience an entirely new format that they had to follow, or there were no other options for them to continue education (Pokherl & Chhetri, 2021). This situation, as Hodges et al. (2020) suggested, was called "emergency remote teaching" or ERT (2020) – creating a terminological difference from online education by employing "remote learning" via synchronous video streaming or conference.

## Self-efficacy and Digital Literacy

Even though numerous institutions have directed technological support to students needed for attending remote learning duties, many scholars and researchers expressed their concerns over students' and teachers' self-efficacy and digital literacy. Originally conceptualized by Dr. Bandura in 1986, self-efficacy refers to "people's judgments of their capabilities to organize and execute a course of action required to attain designated types of performances" (p. 391). Starting as a social theory of how people believe their capabilities of gaining professional knowledge and skills, further development of this theory extended to academic settings to determine whether students would gain motivation, mastery, and retention to their learning tasks (Pintrich and De Groot, 1990; Schunk, 1991; Tsai et al. 2020) In terms of online learning, Bandura' self-efficacy beliefs provide the foundation for affecting engagement, completion, and learning. In 2016, Zimmerman and Kulikowich defined online learning self-efficacy as "an individual's perceptions of his or her abilities to complete specific tasks required of online

learners" (p. 183), enabling students to engage in online education within online learning environments. They found out that the three sub-factors under self-efficacy - online learning environment, time management, and technology use - have a significant correlation with students' number of online courses completed, general satisfaction with online education, and the possibility of continuing learning online in the future (2016). In the online learning environment, the significance of self-efficacy on learning outcomes becomes more pronounced because it requires students to draw out information, complete assignments, and keep social relationships inside and outside the classroom (Jang and Kim, 2012). The frequent lack of instructors' presence requires students' self-efficacy to control their learning habits, and for students with the highest self-efficacy, their learning will not be influenced by the little to no instructor contact (Lim et al., 2021). Geng et al. (2019) also proposed that self-direct learning would help students independently identify their learning goals, find suitable adaptations to their learning styles and goals, and finally reflect and review their learning outcomes to their original goal. On the other hand, Wang et al. (2022) implied that online learning self-efficacy will mediate the relationship between the three types of interactions and learning engagement (learner-learner, learner-content, and learner-instructor), helping students to build deeper connections and higher confidence in learning contents, forming and exchanging their ideas, and completing assignments. Although most remote learnings during the COVID-19 pandemic were a combination of synchronous and asynchronous instructions, it is intuitive that students' self-efficacy still influences their learning outcomes during the off time.

In addition to self-efficacy in online education, digital literacy is another factor that influences students' capability to learn effectively online. Defined as the collection of awareness,

attitude, and ability to use digital tools and facilities to "identify, access, manage, integrate, evaluate, analyze, and synthesize digital resources, build new knowledge, create media expressions, and communicate with other people (Siregar, 2021), digital literacy influences and determines learners and instructors' use of computer-based programs and tools to interact with each other, search for information for active learning and problem-solving, and engage with academic materials and related activities. A recent study by Siregar in 2021 suggests that digital literacy has a significant positive effect on students' online learning engagement (ibid.), so universities should assess the current level of digital literacy for students before implementing online learning schematics. In defining digital literacy, there are two kinds of viewpoints in discussion:

- **Readiness under online learning.** "Readiness of learning online" is usually defined as students' perception of delivery, self-confidence in using e-communication channels and students' autonomy in learning participation (Tang et al., 2021). This kind of readiness is multidimensional and usually constructed by computer skills, internet self-efficacy, self-direction, motivation, interaction, and attitude toward learning remotely (ibid.). A recent study showed that if students' computer self-efficacy for online learning readiness is high, their online discussion and course satisfaction is positively correlated as they could utilize their technology readiness in exploring and quickly adapting new information and ways of learning (Wei and Chou, 2020).
- **The design of online courses.** Similar to in-person instruction, online classes require an established course design from teachers as the essential basis of learning. There are six factors in designing high-quality online courses, including structuring courses, developing

student-centered learning activities, using group projects to build collaboration, frequently assessing student progress, and providing and soliciting feedback to students (Mayes et al. 2014). In their study about study of the effect of online-learning self-efficacy and content structure, Lim et al. (2021) concluded that the presence of instructors during the course is positively related to the content structure and student's satisfaction with the course, and the engagement between teachers and students to facilitate their understanding of ideas is particularly useful in reducing the psychological distance between teachers and students.

**Online Education's Course Design Influences on Engagement**

There have been multiple attempts and studies in searching for a course design standard for online courses. Southard and Mooney (2015) stated that a well-design online education standards should include six categories: online curriculum policies and infrastructure, faculty support, student support, course design, course delivery, and assessment. Later in 2017, the Association of Educational Communications and Technology further enriched Southard and Mooney's idea by adding "purpose", "assumptions", "sequencing", "activities", "resources", "applications", "reflection", and "independent learning" as defining categories (Pina, 2017). It is crucial to note that both standards focus on how an online learning experience is developed through the lens of administrators and teachers, and they tend to aim for universal design that allows individual higher education institution to modify for specific needs. Measurements such as "technology for teaching and learning", "learner support/affair", and "accessibility" are more closely related to the teacher and administrator's duty in preparing the class, and factors like "course overview and introduction", "infrastructure", "learning activities and learner

interactions" are crucial to the success of teaching in an online learning environment (ibid.). However, current online course design standards gave a much lower consideration about the classroom engagement with measurable qualities, therefore teachers and administrators would receive minimal feedback from instructional designers about the designed online course if they want to improve the online classroom environment. For example, Quality Matter's (QM) standards - one of the most frequently used universal online course design standards utilized by universities and colleges (Robinson & Witzer, 2016) – is utilized to assess the result of the implementation. QM standard rates individual online courses under a rubric of 8 categories, where "Course Overview and Introduction", "Learning Objectives (Competencies)", and "learning Activities and learner Interaction" categories contain specific measures of online classroom engagement, such as clear communication, interactions opportunities, etc. (Quality Matters, 2023). However, out of a total of 44 different measurements for a perfect score of 100, QM only provides around 10 measurements with 20 scores that are directly related to online classroom engagement opportunities; the other measurements are more focused on elements of teachers' instruction, readiness, and technology usages.

In proving the lack of effectiveness online course design standards for fostering engagement, Farmer (2020) conducted autoethnographic research by modifying her online course based on QM standards. After being initially evaluated by QM-certified instructional designers and making changes to the online course after the evaluation, Farmer re-evaluated the course under QM standards and got approved after seven months with improvements in technology prerequisites, communication plans, accessibility statements of all the technology tools, and learning objectives. Due to a last-minute change, Farmer did not have the chance to

teach the course and the course was taught by another instructor. With a universal design that "the course such that other instructors could also use it as is (p. 164)," however, the feedback from the instructor was not optimistic as the QM standards' input-oriented concepts placed less emphasis on the outcome and delivery of the course, especially about the engagement between learners and learner-instructor. Therefore, "whoever taught the course still needed to develop a trusting relationship with the learners…give appropriate timely and specific feedback that encouraged learner progress (p. 164)." While Farmer agreed that the standards for online instructional designs can help instructors quickly gather and build the online learning curriculum as a convenience, she suggested a fundamental issue in online learning under higher education as there is a lack of credentials among faculty who can be assessed on their online courses, as well as a regular, continuous evaluation about online courses. Farmer's assertion could also prove that QM standard rubric, similar to other types of online learning design models, vastly ignores the importance of online learning engagement. Therefore, more research and discussion for producing a specific standard for online classroom engagement is logical and supplemental to the current available standards, making those tools more accessible and supportive to teachers in online learning environment.

## Online Classroom Engagement

In any classroom setting, classroom engagement is a crucial part of continuing learning activities and building connections with class participants; maintaining such engagement in the online environment is more emphasized than ever. In practice, both traditional classroom engagement and online learning engagement have three dimensional yet integral perspectives: behavioral engagement counts students' leaning actions within the classroom environment,

cognitive engagement shows student's understanding about strategies of participating classroom activities, and emotional engagement represents students' feelings and sense of belonging while presenting in the classroom environment (Hu & Li, 2017). Unlike the traditional classroom setting where teachers and students physically interact with each other with an authentic social presence, any social interaction - teacher presence, feedback, communication, and collaboration - will be mostly completed remotely; in addition to those social interactions, technology also plays a key role in supporting the creation of aforementioned engagement, the structure of classroom interaction, and the accessibility of educational resources (Hu & Li, 2017; Hollister et al., 2022). Fadde and Vu (2014) pointed out that based on the delivery of the online learning experience, the engagement strategies must be adaptive and flexible to its delivery format and engagement types. For example, in a hybrid learning environment, teachers need to provide similar or identical attention and engagement to online students so all students could actively participate the classroom activities; on the other hand, the asynchronous online learning model would have minimum opportunities to create instantaneous engagement that make students stay and remain focused in the learning process (ibid.). Therefore, the online learning engagement model cannot be treated as an extension of the traditional classroom engagement model.

Generally speaking, online learning should be viewed critically by examining numerous advantages and disadvantages for educators and learners, then creating opportunities to build an interactive and vivid online learning environment in terms of forms of engagement. As for the advantage, the online learning method has more flexibility in customizing learning experiences and collaborative activities, and it also provides different pacing for teachers and students who

have less time to dedicate to synchronous learning. Lecture videos and recordings of synchronous learning would help students to address students' questions, discussions, and problem-solving; on the other hand, even if the student failed to attend online courses, they would acquire the same learning content and review the past course as needed. (Shankar et al., 2021). Secondly, online learning would provide more or similar benefits to student engagement in comparison to some traditional lecture classes. Shankar et al. (2021) concluded from their research that introductory and foundational courses will provide more benefit to students as online learning increases student-instructor interaction - something that is hardly achievable in traditional large lecture halls. For seminar classes that are in smaller sizes, online learning would also recreate a similar classroom experience for students if the technology would enable their in-depth learning and engagement (ibid.). Also, online learning makes it easier for educators to use digital services that include more options for students in providing immediate or asynchronous feedback and comments (Baker & Taylor, 2009).

On the negative side, the lack of real-time communication and feedback is one of the most crucial problems for online learning. As online learning effectively delivers knowledge and theories from educators, there is a lesser focus on communication within teacher-student or student-student collaborations (Tamm, 2022). This kind of problem could be addressed by a series of simple tasks such as collaborative decision-making activities or by supporting a more open environment for any kind of communication, feedback, or protocols that lead to deeper discussions and responsiveness (Young & Bruce, 2011). The communication should have a clear structure that addresses students by name, how to start or end discussions, pose questions, make comments to students' inputs, and other ways to maintain high attention from students (Gray &

DiLoreto, 2016). Finally, the lack of digital literacy and self-efficacy among students and teachers will hinder the effectiveness of collaborative learning in the online classroom. Due to the limited connections between students and teachers, students may express concerns about not focusing on learning materials or communicating with other classmates during synchronous learning (Dumford & Miller, 2018). Moreover, students in adult age would not have a higher time dedication to online learning activities as they manage work or other activities (Scrapetta & Quintini, 2020), making students reduce their learning effectiveness and engagement in an online learning environment.

# Methodology

## Research Design

To investigate classroom engagement in online learning and make an assessment of such implementation after two years of ERT, I utilized a mixed-method research design to give a more comprehensive and integrated study about this subject matter, exploring how the variety of online learning engagement strategies affect students,' satisfaction, and retention in an unfamiliar learning environment. The goal of this research design aimed for a more comprehensive overview of the format, design, and implementation of engagement strategies in different kinds of online courses.

This research followed an explanatory sequential design that incorporates a quantitative survey for gathering a broad range of numeric measurements and analyzing the general trend among participants, continued by a series of qualitative interviews and observations to incorporate, reflect, and connect the findings from quantitative data. By utilizing this approach, the research addressed the research questions by using quantitative instruments (such as a

survey or questionnaire) to inform themes, factors, and directions of a deeper qualitative research (using instruments such as interview) (Creswell, 2011). Measurements about factors influencing online classroom engagement explained strategies that are beneficial for both students and faculty to engage remotely. It also informed strategies and directions for higher education institutions to make online learning more favorable among students and faculty.

Mixed-method research requires a diverse range of participants and sample sources, and this research incorporated perspectives from both student and faculty members. As most students and faculty currently enrolled at the University of Washington have experienced COVID-19-era remote learning in various degrees, the sampling strategy for both quantitative and qualitative portions was primarily selective based on the delivery of online courses, participant's experience of dealing with online learning format, etc. Again, the research questions are as follows:

- How could higher education faculty improve students' classroom engagement and understanding of learning materials in online education?
- To what degree do students and faculty agree upon factors that influence their learning/teaching experience during their online engagement?
- How would higher education institutions support their faculty to address concerns and sustain actions and improvements in building good, engaging online learning environment for all participants?)

## Variables

Examing the classroom engagement in online environment requires a set of measurable variables to inform, and this research utilized the guidance provided by the University of

Washington (n.d.) for designing an online learning environment to measure whether the current online learning environment at the University of Washington is considered "engaging" for student learning or not. There were 5 major independent variables as the basis for identifying the effectiveness of online classroom engagement in both quantitative and qualitative stages of this research:

- The instructor establishes and models communication norms for an inclusive, welcoming learning environment.
- The course includes multiple avenues for learner-instructor interaction.
- The course includes multiple opportunities for learner-learner interaction.
- The instructor is a visible, engaged presence throughout the course.
- The instructor creates course content using a variety of formats to promote learner engagement.

Based on the independent variables provided above, my exploration of those variables was collected and classified in four different ways: digital survey (quantitative), semi-structured interviews (qualitative), and in-class observation (qualitative), and written documentation (qualitative).

## Data Collection

The starting point of this research was a quantitative questionnaire. This questionnaire was distributed in an online format via Google Forms, and the whole questionnaire should be completed within 5-10 minutes. The questionnaire's link (Google Form) was distributed at three UW's College of Education graduate-level classes during Spring 2022 quarter that included some level of online learning, and the survey participants could reflect on their online learning

engagement and their relevance to the 5 independent variables. Most of the questions utilized Likert Scale ranging from 1 to 10 (1 = Not True at All, 10 = Very True), and some questions with categorical responses (e.g., current degree), numerical responses (e.g. year of first online courses at the UW), and text entry were also included to provide adequate data and presentation needed for the analysis. The result of the questionnaire also helped me to adjust and improve the interview protocols for creating a more meaningful narrative and analysis. The questionnaire utilized in this research can be found in Appendix II. In total, 8 eligible responses were received, recorded, and analyzed.

Once the quantitative data was collected, the received information was analyzed and referred as the conceptual basis and starting point of a larger-scale qualitative research stage. In this stage, three types of qualitative data were collected and analyzed:

- **Interview**. Three interviews were made between February 2022 to March 2022 to accommodate interviewee's schedules and get consent form signed, and interviewees were three students from three different classes: Kyle from Class B, Laurel from Class A, and Yanni from Class D. None of the three interviewees participate in the quantitative research as their personal information identifiers never appeared in the quantitative stage.
    - Kyle is a graduated senior student at UW, and his reason for taking Class B was because of his interest related to the course content. Kyle was selected for the interview because he was among the student who had attended at least 2 in-person sessions before Feb. 8th, 2022, the interview date.

- Laurel is a second-year graduate student at UW, and she took Class A as a part of her program-required core classes. Laurel was selected for the interview because Class B was the first online class, she took in a higher education institution.
- Yanni is a graduated Master student at UW, and she took Class D as a part of her program-required core classes and her interest related to the course content. Class D faced a similar transition as Class B regarding classroom participation and attendance, but most students attended the in-person session while only a few students joined via remote learning. Yanni was selected for the interview because she was among the students who chose to stay online for the entirety of the course, even during the planned in-person session.

All three interviews were conducted in person, and an audio-recording device was used for transcription. The interview asked participants to elaborate on questions based on an interview protocol related to their experiences and comments based on their questionnaire response, their classroom participation, and their overall preference for online learning and effective ways to keep them engaged. All interviews were designed and conducted under ethical standards by IRB, giving a comprehensive acknowledgment to participants. The semi-structured interview protocol for this research can be found in Appendix IV.

- **Observations.** Qualitative data from the observation consists of field notes from different online courses. Site observations focused on 1) three types of interactions (Learner-learner, learner-content, and learner-instructor) defined by Wang et al. (2022); 2) how participants proceed and collaborate in each learning objective, and 3) the number of

interactions/exchanges and level of engagement throughout the observation. For example, if students had an extensive discussion about one of reading questions in a breakout room, I would count how many back-and-forth discussions (1 per participant) between participants and ranked the level of engagement, noting their active learner-content and learner-learner engagement in a collective manner. All the field notes provided anecdotal and observational proof about both surveys and interviews, aiming to provide anecdotal and real-life evidence for supporting general trends and themes identified in the quantitative and qualitative research. Due to the modality of the online learning experience, the data collection needed a selective sampling strategy to choose the observation site that could reflect all kinds of online learning deliveries that are currently available. For the online classes with synchronous components, the observation happened during the normal classroom time which took place for about 2-3 hours. For the online class that remained asynchronous, I observed online interactions in Canvas, an educational management system (EMS) utilized by the University, to look for components of classroom design, logistics, and the discussion format related to the engagement. Three observations were made for this research:

- **Observation A**. This observation happened during a fully-online Class A of this Winter 2022 quarter. The instructor of that class assigned a course reading that was a bit difficult to digest, but the instructor disclosed that this concern was collective feedback from some students in this class who found the assignment difficult. Before having a Breakout Room discussion for questions about the assigned reading, the instructor provided an audited summary of the article and

talked over some of the key ideas that came out from the reading, which drew from lots of classical ideas from critical pedagogy and terminologies that had not been discussed in previous sessions. When the Breakout Room session started, I joined the assigned breakout room as an active participant and met with Students A, B, and C. The instructor assigned the participants in each breakout room in random, therefore I did not have any control over who I was working with.

- **Observation B**. This observation happened during a hybrid Class B of this Winter 2022 quarter. This class was originally planned for twice a week, in-person instruction that had no intention of purely remote instruction, but the University of Washington's announcement of shifting online learning for the Spring of 2022 made this course be online for one month. After the end of January, the instructor created a hybrid learning model where students could decide whether to attend in-person or online, and the instructor would be in a classroom for students who preferred in-person classes. When implementing this change, most students from that 17-student class chose to stay online, and around 3-5 students attended the in-person session. This class also enabled a variety of accessible tools for students, including notetakers, closed captions, and video recordings of the online session. The instructor made a flexible policy for classroom engagement as students were free to join the discussion via either speaking or typing into the chat box, and the instructor would interact with students via chat frequently. Observation B happened during a session later in the quarter as the instructor and students were performing pre-class check-in about the Spring 2022 mask policy of the University

of Washington and things that happened around the world. **Observation C**. This observation happened during a fully-online Class C of this Winter 2022 quarter. Similar to Class B, Class C was planned as a fully in-person instruction, but a combination of pandemic-related factors and Federal holidays made this class contain 4 asynchronous sessions out of 10 online sessions, creating a significant lack of real-time engagement between students and the instructor. Most students from this class agreed that this class's learning content was confounded and rigorous to read through, and they expressed some of those concerns in the Discussion on the class's Canvas site. Observation C happened during the third to the last session as the instructor wanted students to discuss the class reading assigned for the week in the randomly assigned breakout rooms, and later, students were prompted to discuss the reading in the larger group. The instructor led the discussion and used cold calling frequently.

- **Written documentation**. This documentation was a record of fully-online asynchronous workshop called *Teaching Online 101* (TO101). The said workshop was created based on the inquiry of constructing an online learning course under UW standards, and it would guide participants to "promote student engagement and success in our hybrid and online learning environment" (Class announcement, June 2023). By participating in this workshop, I gathered information, notes, and documentations based on the online interaction between participants in the Discussion section of Canvas, participants' comments regarding the provided materials during the workshop, and the experience of navigating and engaging the course module as an active participant. I attended two

workshops during the second half of 2022:

- In the Summer 2022 cohort, I was first assigned to the group "Vashon" - a group of 22 UW instructors, staff members, and students across different UW departments. During the second half of the workshop, the Vashon group was merged with another discussion group to move forward. The total enrollment was 209 students and 11 teachers for the Summer 2022 cohort.
- In the Fall 2022 cohort, no group was formed for the Fall 2022 cohort, and the total enrollment was 140 students and 10 teachers in total.

Based on the asynchronous modality, the engagement level was measured by the number of responses in each Discussion section under the workshop's Canvas site. A comparative study was conducted to see any changes and improvements between the two workshops, and the change in instructional concerns about online learning among the UW faculty community. The two workshops were comparable due to the nearly identical course design, information provided, and course format. The collection of documentation ended after the last workshop of Fall 2022 when no more new posts and interactions were updated.

## Data Analysis

After data collection, the data analysis process started with two separate data analyses of quantitative and qualitative datasets, followed by the integrated analysis of the two individual data analyses. For the quantitative data, Google Sheets was the default database for all the raw data. Statistical Package For the Social Sciences (SPSS) helped me conduct data analysis to find

the descriptive statistics and correlations to the independent and dependent variables, and it helped me to identify the common theme that could refer to details and directions about interview protocols and type of engagement pattern that should give additional attentions during the qualitative stage. It should be noted that due to the limited number of completed questionnaire obtained, the quantitative data was also analyzed qualitatively to look at detailed responses. As for the qualitative data, a code system was used to summarize the general trend and keywords identified from interviews, surveys, and fieldnotes for a more informative, thematic analysis. Those fieldnotes were juxtaposed with thematic codes from quantitative survey and other qualitative data to make comparisons if some of those concepts have previously been present or absent in the online learning environment. The research should build connections between codes and observation notes to discuss if those examined factors are giving positive or negative effects on online classroom engagement. Both quantitative and qualitative data were later combined and examined to generate a comprehensive understanding and validity in the Discussion section. Due to the difference in the online learning setting, context is provided for each recommendation.

## Findings

Due to the nature of this mixed-method research, the finding will be separated into two parts. The first part would reflect upon the surveys, interviews, and the first three observational data that give a better understanding of online learning engagement mostly from the student's perspective, as well as some engagement strategies seen during synchronous/hybrid online learning environments. The second part would give a detailed description and analysis of the observation and documentation obtained from the asynchronous interactions within TO101,

reflecting how UW faculty and staff, and students experienced and reflected upon the need for online engagement in remote learning. This separation is made based on the instancy of engagement: synchronous online and hybrid online is focused more on immediate engagement that participants would interact face-to-face, and asynchronous online would have more textual and delayed engagement.

**Part 1 - Synchronous/Hybrid Online Learning**

After two years of online learning, students and instructors at the University of Washington have adopted several strategies to increase their learning experiences, but it is crucial to know how those strategies fit their needs. As the data collection and analysis proceed, several reoccurring trends and themes appear to be some of the key factors for good online learning engagement. In this section, I used the data from both survey, interviews, and observations to produce an integrated analysis, and I would notify which pieces of data were used to generate the finding.

The first recurring theme for good online classroom engagement is the frequent feedback and interaction between classroom participants. When asked about engagement strategies they loved about online courses at UW, the top three strategies ranked by survey takers are “class-wide check-in at the beginning of the class (7 out of 8)”, “frequent breakout rooms discussion (6 out of 8)”, and “frequent feedback giving and receiving between student/instructor (5 out of 8)”. All three strategies involve real-time, frequent interactions and engagement between participants within the online learning environment, forming a strong social presence of students and instructors within the learning community. The modality of online learning requires online classroom participants to have higher and clearer verbal interaction to recreate the presence of

the classroom or the direction of learning activities. Overall, all eight respondents gave a relatively high rating for their classroom engagement in online classes at UW (M = 9.125), and they would normally have a higher-than-average frequency of receiving feedback from other participants: most survey takers actively engaged with their classmates in the online learning environment (M = 7.00) and maintained frequent or quick feedback with other participants (M = 7.75). A slightly lower rating of their activity of classroom participation (M = 6.125) was observed. This finding indicated that students would participate and engage with other participates in an above-average manner, and they mostly agreed that their perceived engagement level was satisfactory. It should be noted that online classroom engagement consisted not only learner-learner interactions, learner-instructor interaction would also count for how the engagement unfolded in the environment.

When asked about the interaction with the instructor, one survey participant who remained anonymous identified the role of the instructor within an online learning environment as a "facilitator more than an instructor", emphasizing the importance of social presence. Another participant wrote:

> *"The instructor is very responsive and provides feedback on the assignments we completed. We hear regularly from the instructor about the course and it is interesting to complete one class project instead of doing multiple unrelated ones. I feel the instructor cares about the students and the learning atmosphere (online and in person) are both positive." (Anonymous, Survey, March 2022)*

Kyle also mentioned how the instructor from Class B focused on the accessibility of the online learning experience:

> *"I think you would agree with me that [instructor's name] has brought so much accessibility to this class, and she wants to make sure everybody can learn collaboratively either in-person or online." (Kyle, Interview, March 2022)*

These comments connect with Gray & DiLoreto's claim (2016) as instructors should maintain regular communication and presence in their courses for a greater student perception of learning and satisfaction. This claim was supported by other survey takers that their instructors were using the maximum effort in maintaining the classroom atmosphere (M = 9.125). While teaching or learning online, the interaction between participants should remain at a verbal level as they rely on audible and visual information, but the physical presence of a classroom is mostly nonexistent where participants are feeling more physically connected. Therefore, it is more than likely that both instructors and students should make their presence visible and detectable to other participants, mitigating the lack of interaction posed by online learning delivery.

Stemming out from the first recurring theme, the second recurring theme for a good online classroom engagement focused on student-centered discussions and smaller groups. In the online learning environment, this concept is portrayed as breakout rooms during the class session or a more flexible approach for student-produced responses in the classroom. Many survey respondents expressed they were in favor of breakout rooms as well as getting engaged in breakout rooms (M=7.875), and one survey taker praised the extensive use of breakout rooms that was "carefully crafted" by its instructor. This tendency was also reflected in the interview with Laurel and Yanni:

> *"Yes, I love breakout rooms as I hate to talk in front of a large group of people. This is different from teaching in the classroom – I am okay to talk in front of my*

*students, but I am afraid of expressing my ideas with a similar size group of adults." (Laurel, Interview, March 2022)*

*"I think the breakout rooms are all right for me. If we have shorter breakout rooms, I and other classmates would try to discuss as much as I could; if we have longer breakout rooms, we could use that extra time in talking with others about other kinds of stuff we can think of at that time. Being in an online classroom need lots of connections with other [participants], and breakout rooms are the space designed for that." (Yanni, Interview, March 2022)*

As soon as the breakout room started, the engagement between students was very consistent and continuous, showing the positive connection between students' motivation in having a more active role in the classroom and the frequency of useful verbal engagement between participants. Yanni reflected on her opinion of that strategy:

*"Maybe because of a smaller class, I could feel that I am very connected with my classmates and instructor as I can talk more frequently with them. I cannot get the same feeling from a lecture class I am taking this year because the instructor gives few chances for us to ask him questions or talk with classmates." (Yanni, Interview, March 2022)*

The smaller classroom size has been proven effective in increasing students' classroom engagement, learning performance, and satisfaction about the course in higher education setting (Cuseo, 2007; Iaria & Hubball, 2008; and Wang & Calvano, 2022). Both the observational data and survey data further support that smaller classroom size can also bring positive engagement to all participants, including the online learning setting. From Observation C, a significant

difference in the engagement was observed as most students who remained very vocal and engaged within breakout rooms tended to decrease their willingness in discussing with the larger group, and the instructor's cold call became one of the most used methods to start the larger discussion instead of student-initiated discussion. This phenomenon was also mentioned in the survey as one survey taker wrote:

> *"Most of the students engaged in small group conversations, but in class-wide discussions, the overall participation was lower. I'd rather have an in-person class because as an international student - it's easier for me to interact and participate in in-person discussions." (Anonymous, Survey, March 2022)*

Although there is no current study about whether the smaller classroom size have positive impact on the classroom engagement in online learning, it is intuitive to assume that this approach will be more beneficial to increase active participation and engagement among participants,

As students are given more freedom in choosing what kind of interaction they can follow, they prefer to engage the learning content that would make them feel more confident in participating in the class activities. This happened during observation A as well. While doing the small group discussion, the instructor from class A provided a detailed outline about how the breakout room discussion should proceed, including compare-and-contrast between different articles and reflection of personal experience. Moreover, the instructor provided an audited summary of the article and talked over some of the key ideas that came out from the reading, which drew from lots of classical ideas from critical pedagogy and terminologies that had not been discussed in previous sessions. These actions also helped students to understand the article, enabling them to discuss the content of the reading and engage with other classmates. During

the Observation A, Student C was particularly vocal about its frustration over the reading and the insertion of my approach to connecting the conceptual framework to the practice. Having the presence of vocal participants within the small discussion group, in this case, led to the outcome of the discussion diverting from the instructor's intention. One survey taker called Rose also expressed a similar concern about her online learning experience, saying:

> *"I noticed in this class that at the end of the quarter, students were more prompt to talk about off-tasks topics. I've noticed the same in some of the classes I'm taking now. Maybe students get demotivated to interact in break-out rooms with the time." (Rose, Survey, Feb 2022)*

On the other hand, this kind of freedom would also allow the student to choose not to have effective engagement with the classroom. During the observation for Class A, the actual conversation that happened within the group focused more on the personal connection to the reading, relating only a portion of the intended goal for the breakout discussion.

When being asked about something Kyle wanted to see from the classroom engagement in his class, Kyle gave his opinion about some of his classmates' preference of not turning on cameras:

> *"Also, I do not feel the classroom engagement is authentic enough as only three or four people - including our professor - to turn on the camera, but the other ten will keep their cameras off, or even not unmute themselves to talk. I prefer an online classroom where I can see each other, but our class is not one of them." (Kyle, Interview, March 2022)*

Kyle's assertion about his classmate's dismissal of online learning was not unfounded. Although the survey participants gave a generally positive response to their online learning experiences, they were inherently no regarding online learning as their preferred method over in-person learning for their classes (M = 4.00), so it was logical to deduce that they would not actively choose online learning for a class in comparison to the mandatory participation. The average active participation in classroom activities (M = 6.125) also supported the fact that instructors must create more relevance of the learning content in online learning for their students to remain active online.

Although both observations prove the effectiveness of making students engaged in online learning in fostering a positive opportunity for students to create topics during their small group discussions, one negative outcome from the second recurring theme would have the potential in influencing how students would use the given freedom for engagement. Once students are in breakout rooms, instructors would be isolated from all students unless instructors actively switch between different breakout rooms. This action could be problematic for instructors to monitor and track the discussion progress in each individual breakout room, or instructors' presence in the classroom would interfere students' discussion as they felt being monitored.

The third recurring theme for a good online classroom engagement, surprisingly, is the general preference over check-in before the class starts. This activity has been proven to have benefits in prompting students to develop their group-work skills and knowledge while listening and offering communal support, ideas, and guidance in an in-person group-work class (Clemans, 2011). In the context of online learning, however, there only had been one pilot research done

about the effectiveness on check-in in online learning in the high school context with parent intervention. The research result showed a significant increase in students' engagement in attending classes when the check-in was available (Mallory & Hampshire, 2022). In the higher education setting where students are more autonomous and independent, check-in format should be more student-oriented for initiating voluntary participation, and the instructor should provide necessary guidance to regulate the check-in. Observation B is a good representation of how this activity would work in an online learning setting. As the instructor provided an opportunity for a class-wide check-in before the class with topics, she would talk to the student in the classroom and the online meeting room, and she put the question in the chat box for all students. No matter when students joined the classroom, they could express their concerns, experience, and knowledge about those topics as the instructor would not interrupt or stop the check-in, allowing students to continue the discussion/conversation until they ceased the discussion by themselves. When the instructor returned to facilitate the classroom, most students in the classroom were following the instructor's direction in participating in learning activities, showing the effectiveness of check-in in preparing students to get ready for the class. 7 out of 8 respondents selected class-wide check-in as the most joyful part of their online classes, showing that both students and instructors would prefer to see such activity as a part of classroom engagement. Yanni expressed her opinion about how check-in questions influenced her expectation about online courses:

> *"I believe my instructor is obsessed with asking check-in questions. Every class of her starts with a different check-in question, and she insists everyone talk about it for lowering their nerve. To be honest, I am curious about what check-in question*

*she would ask before every class – it has become a tradition for her class, but it never ceases to bore me." (Yanni, interview, March 2022)*

While waiting for more related research about the effectiveness of check-in in the online classroom in the higher education setting, this factor could lead to another interesting exploration of the online classroom engagement about how students and instructors want to recreate the community-building and social aspect of online learning. However, the instructor should also be aware of how the check-in question would affect students' mood of attending online courses. When asking about something wanted to improve in online learning, Laurel recalled an experience in one of her other classes when the check-in became very passive as everyone was talking about their stress during the week:

*"When the first person finished the check-in about how busy he was throughout the week, other participants also started to talk about their stressful moment in that week, and I can feel the mood inside our Zoom became kind of depressing – especially when one of them talked about her traumatic experience of being stalked. I knew it was a Friday class and everyone had been very busy throughout the week, but I hope that I can start my weekend by not worrying about my classmate's wellbeing and safety. (Laurel, Interview, March 2022)"*

In Laurel's case, the intimacy and freedom of check-in encouraged participants to share more about their personal experiences, but such an experience may not suitable and bearable by other participants to absorb such an information. Additionally, the instructor's presence was not clear as there was no regulatory action to divert the action, therefore students would continue the conversation without realizing their engagement was diverted. This discovery connect with the

concern about the second recurring trend as the instructor's presence and management over student's engagement should be looked carefully.

Findings from surveys, observations, and interviews revealed factors and strategies of effective online classroom engagement when synchronous online learning format was deployed. Comparing findings with the five independent variables identified from the online course standard of UW, we can observe that instructors tended to give higher attention to building and maintaining interactions and constant learn-learner and learner-instructor engagement throughout the course duration, and the synchronous learning environment would help them to utilize a variety of formats to promote such engagement happening in the classroom - breakout rooms and pre-class check-ins were seemed beneficial and popular among instructors and students to remain engaged in the classroom. Data from observations and interviews also concluded that instructors should provide a clear, structured classroom structure to guide students in completing their class goals, helping students to get less stressed in navigating through course contents.

**Part 2 - Asynchronous Online Learning**

As previously introduced in the Methodology section, *Teaching Online 101's* (TO101 asynchronous online learning design would have different engagement strategies and focuses in comparison to synchronous/hybrid online learning experiences. As the TO101 was an asynchronous online course, all the data were documents of the received course material and textual interactions between participants. The findings will focus on the overall engagement of this workshop, faculty's concern over online learning, and what faculty agreed upon about factors of designing an engaging online learning environment. Because of the most participants are UW

faculty members, I would provide a clarification that "instructor" refers to the TO101 instructional team who managed and taught the course, and "participants" and "faculty" refer to teaching members at UW who attended TO101 in both Summer 202 and Fall 2022 cohorts.

As for the course design, the main purpose of TO101 was to help teaching faculty and administrators to construct an online learning platform via Canvas - the primary Learning Management System of UW - as well as teach theoretical knowledge in online learning, learning technologies, learner-centered designs of learning modules, communication between instructors and learners, accessibility of learning resources, and assessment of learners. This 5-week workshop divided each week into two segments with clear expectations and learning objectives of the module, dedicated modules with relevant information, external links to additional resources and interactive tools, and a quiz or a discussion forum that allowed participants to connect and reflect at the end. Due to the short time and density of information, the instructor included multimedia content for greater accessibility, such as videos from either instructor or outside resources, information with visual presentation, and the logical connection/progression between each module. This design allowed participants to gather all learning information from the module instead of going through different sections on Canvas. At the same time, the course design focused on building an online course with established standards, and one of those modules stated that the workshop's design followed QM and UW's standards for designing an online course. In addition to learning modules, the workshop also provided a dedicated Canvas test site for participants to construct their online learning course, and the instructor would evaluate the site and provide feedback accordingly. As stated above, I collected data from the Summer 2022 and Fall 2022 cohorts. For both TO101 cohorts, participants were a mix of different

identities, such as instructors who had just started their remote teaching during the COVID-19 pandemic or were seasoned with online teaching experience, some were staff members who came here to learn how to support the digital learning initiative of their departments, some were "new coaches in the residency" who joined multiple UW academic departments to support instructions, and only a few were UW students but had teaching duties. Given this composition, most of the discussion about online learning in TO101 was under faculty's perspective with fewer insights from students' perspectives, showing how different academic department have viewed and adopted online learning and the problems in online learning encountered by UW teaching and administrative members while trying to implement online learning into their practices.

The above summary of how TO101 was constructed provided a strong argument for Farmer's argument (2020) that standards for online learning experience are beneficial in constructing a well-designed course, if instructors can follow the established standards; from the observation and learning experience. The combination of instructions, discussion, and hands-on projects and assignments fostered a well-thought learning experience that encouraged learners to utilize and appreciate the benefit of learned technology and knowledge, helping them to address their real-life concerns in their teaching duties. With all the necessary digital features for increasing online learning engagement presented in the workshop modules, the instructional team of TO 101 showed a high level of digital literacy with a well-designed online course interface and content.

In both TO101 cohorts, "Aspirations and Anxieties" and "Ideas for being present in Class" were two of the most engaging discussion forums as both factors closely relating to the online classroom design and engagement with students. This finding is crucial as they came from the

perspective of teaching faculty who utilize online learning as their primary teaching modality. Although these two discussion forums had different topics and participants, they resonated with these two factors:

- The discussion of "Aspirations and Anxieties" asked participants to identify one thing they wanted to achieve in online teaching and concern since the beginning of the workshop. Across all 22 participants of the Vashon group, 12 participants wrote "engagement strategies" as their aspirations from the workshop. They related their urges of creating more discussion in the course. Some participants mentioned online community-building, and some participants linked engagement with accessibility or assignments for students. Participants who answered differently focused on digital literacy, content availability and accessibility, and recreating the classroom experience via online tools. As for the concern, 15 participants from Vashon group answered "time dedication" as the major concern in completing an online course. I previously stated that students who attend online courses do not have time dedicated to traditional classroom education. The Vashon group also supported the claim that all participants had more responsibilities in their lives than learning. Joining this workshop suited their professional development needs in improving their online teaching skills, yet the coursework and deadline for homework completion would take more time away from their daily routine. On the other hand, some participants felt overwhelmed by the amount of learning content absorbed in a short time, fearing they could not retain the learned knowledge as much as they could. In the Fall 2022 cohort, 169 participants answered that a majority of participants (102 out of 169) also wanted to learn more about "engagement strategies" in both synchronous and

asynchronous online environments, pointing out elements like in-class activities, less distraction, less lecturing, community building, etc. Compared to Vashon group from Summer 2022, the cohort of Fall 2022 had more varied concerns over digital literacy, time dedication to learn, proper engagement strategies with students, etc.

- The latter discussion forum asked participants to talk about their engagement methods to recreate the social aspect of online learning. While many participants provided a large number of strategies, they used in both in-person and online classes, several recurring themes occurred in their responses. Several participants said that they would reserve a portion of their class time for icebreaker activities, and the personal introduction to other classroom participants would also work. As discussed in Part 1, check-in time before each class helped students to get situated with the classroom experience. In this case, however, these frequent check-ins created personal connections between students and instructors as they could know each other as people, reduce the boundary between them, and assure each other that their presence would not be ignored. Especially in an online environment, such assurance becomes more essential due to the lack of physical presence.

In order to maintain engagement in an asynchronous online learning environment, the instructional team utilized some strategies to address this issue to make the workshop more authentic. According to the finding in Part 1, check-in section helped students and instructors to know each other and build the essence of community, and interactions between participants with “thumb up” emojis or replying to discussion posts were frequently observed. In TO101, the instructor included an introduction section for all workshop participants in the first week to write

a short description about themselves, as well as encouraging photo-sharing and video-recording. Having a dedicated check-in section also served as a great opportunity for participants to talk about their backgrounds in online learning/teaching, their concerns over the modality, and their learning goals in this workshop. The check-in became one of the most visited sections for both Summer and Fall cohorts. Although both workshops were asynchronous learning experiences, there were several synchronous conversation times available for participants and instructors to connect, setting up small breakout rooms for individual or small-group assistance and check-ins. As all participants were eventually involved in a larger discussion group of their cohorts, data related to online classroom engagement and concerns in education from participants became more authentic and comparable.

The most prominent disadvantage was the interaction between participants remained low in both cohorts. For example, the instructors mandated contribution on the forum as each participant needed to contribute one original post and one reply to another participant's post at minimum, and there was no upper limit to how many replies a participant could contribute as long as the participants wanted to remain active; also, those responses should be posted by participants before the deadline. I identified this requirement as the "engagement quota" where each participant needs to have at least two posts in each discussion section. During the Summer 2022 cohort, the number of replies per the discussion forum steadily decreased from 50 responses (M = 2.27, n=22) at the first forum to 28 responses (M = 1.27, n=22) at the last discussion forum within the Vashon group, indicating a 44% drop in engagement within 3 weeks; there was no clear indication of how many participants remained in the TO101 after the merge to calculate accurate percentage rates, but the forum's average traffic remained low as less than

100 posts were collected in each discussion forum afterward on average. Such a drop became more significant in the Fall 2022 cohort: while the introduction collected 158 responses (M = 1, n = 158) in total, only 104 responses (M = 0.69, n = 158) were collected in the second discussion forum, indicating a 30.7% drop in engagement within a week; the last discussion forum in the larger group only received 57 posts in total (M = 0.36, n = 158). From the available documentation from participants, the lack of time dedicated to complete workshop tasks was one of the main reasons for the lower engagement frequency mentioned by participants. When asked about their concerns over the completion of TO101, 15 out of 22 people from the Vashon Group answered "time dedication" as the major concern in completing an online course. This trend was observed throughout the remainder of Fall 2022's TO101 as less participants were willing to participate in discussions, so it was conclusive to say that participants were losing interest or incentive in extending their prolonged engagement over the asynchronous course, even though the engagement quota remained unchanged throughout the course.

Some more evidence to support this claim about low participation is the number of replies under each post in two cohorts that were generated by participants other than the TO101 instructors. During the TO101, instructors would comment under workshop participant's posts to provoke their thoughts or to reflect upon their posts, so the comment created by other participants instead of instructors could also indicate how engaged the TO101 cohort was throughout the course. During the Summer 2022 cohort, most original posts in the Vashon Group and the merged group would have at least one reply or reaction from other participants, and only around 17% - 23% of original posts lacked any reply or emoji, meeting the "engagement quota". For the Fall 2022 cohort, this percentage locked at 21% - 29% of the original posts by the time

TO101 concluded. The increased number of posts not getting replied to or engaging with other participants could be related to several reasons as well, such as participants lacking opportunities to know each other in a more engaging and accessible way, repeated ideas from other posts, and less time dedication to read through all discussion posts, etc. In the end, some participants replied to each other's posts, and most replies under discussion posts were made by the course instructor. For both cohorts, around 23% of the discussion posts were submitted after the posted deadline, connecting with the overall decrease of activity on Canvas as the date went closer to the busier times of the academic year at UW (early September and mid-December). These findings showed that even though instructors enforced a guidance and assessment standard to ensure the engagement could happen in an asynchronous environment, not all participants would have the self-efficacy to sustain their learning engagement throughout the discussion forum (Zimmerman, 2013). Additionally, for both cohorts, hardly any participants went back to the previous discussion forum after they reached their "engagement quota" on the week, making some of those posts near the deadline have significantly less attention and traffic than earlier discussion posts. This phenomenon indicates that most participants had less self-efficacy in continuing the engagement of this course, or participants lacked the motivation to sustain their engagement through the asynchronous messages, treating the "engagement" as a need for completing the assignment.

Factors that contributed to the decreased engagement throughout the TO101 can also be related to the general lack of clarity on classroom facilitation and communication, which had been proven critical in the online learning environment in the Part 1 of Finding section. For the Summer 2022 cohort, the number of replies after the merging was high, but I suspected it was

more related to the increased number of participants in the merged forum instead of participants suddenly becoming engaged, indicated by a generally decreasing number of responses after the merge. The merge happened without much notice, so the influx of unfamiliar participants from other groups reduced the rapport built among original group members, especially when I got surprised by a reply from someone not from the Vashon group. In this case, the instructor was not making an explicit announcement about the change in modality of the course, therefore some of the well-sustained engagement before the merge was gone, indicating the lack of facilitation and communication between the instructor and students. Due to the lack of real-time communication and interaction between participants, the engagement in TO101 became fluctuating and generally decreasing, revealing some of the negative outcomes of asynchronous online learning in terms of maintaining engagement.

In the end, TO101 represented a novel opportunity for faculty and administrators to discover, exchange, and create ideas and skillsets about making online learning engaging, and the workshop itself provided a great insight about engagement and trends in an asynchronous online learning environment, especially in relation to the faculty's actual learning and teaching experiences with the online learning engagement strategies. However, issues about engagement within the asynchronous online learning were still present in TO101 – namely decreasing number of responses, lack of clear communication, and low interaction between participants – for producing a profound engagement with learners and instructors.

## Discussion and Recommendation

Combining the results from both parts of the research, those previously identified themes in the Literature Review are expansively proven by the research data. Based on the modality of

online learning engagement, there is a shift of focus on the priority of online learning from "teaching content" to "teaching quality" for faculty members. Based on the five independent variables for determining the online learning engagement at UW, the mixed responses from participants in both parts of the research indicated that both students and teachers were optimistic yet concerned about the implementation of online learning in terms of classroom engagement. Hearing these concerns from participants, I could confirm that both faculty and students shared the urge for effective online engagement strategies, and aspirations from research participants were foundational and essential in building the social aspect of the online learning environment. Faculty's perspective adds another layer of understanding to online learning engagement and how they would navigate the asynchronous online learnings models to recreate what their students would experience in the online courses.

There was a consensus among teachers and students that engagement is one of the most important aspects of online learning as the engagement influences the general learning outcomes, qualities, and knowledge delivery. Both students and teachers quickly identified that online learning was not only about learning knowledge through a new type of delivery method, but it also needed extra focus on creating engagement rules that are specific to the new environment. In making the online learning classroom engaging, teachers utilized a variety of strategies for different modalities of online learning, including smaller/larger classrooms, learner-learner and learner-instructor, and multimedia sources that could be only attainable in online learning. This phenomenon was shown in Part 1 as most student participants agreed and appreciated their instructors' efforts in maintaining an organized and engaging online learning environment, showcasing the shifting role of instructors in such an environment.

Coming with the change of delivery method also came with confusion and a lack of experience in digital literacy for many instructors who never taught online before, as shown in Part 2 of the research. Most instructor participants who joined TO101 had a clear goal of utilizing things learned from the workshop to increase their digital literacy, engagement strategies, and classroom management that were unique to the online learning. Their comments about the difficulty in maintaining constant engagement with their students were closely related to Farmer's comment about how to make online learning engagement more effective and authentic (2020). On the other hand, the research also revealed that both instructors and students were not too worried about the content of online learning as part of engagement strategies, as only a few participants in both Part 1 and Part 2 expressed their concern about making the classroom content more engaging. It is possible that the content of online courses at UW was already available in the in-person format, and instructors could only make slight adjustments to fit the online learning delivery at the minimum effort, but this could be a drawback that hinders the development of curricula exclusively for online learning. Future studies can help more scholars and researchers to determine whether such a simple transformation would influence the online classroom engagement.

By looking at the difference between synchronous and asynchronous online learning, we can realize that the clear difference in the engagement strategy relies on the type of social presence. In synchronous/hybrid online learning environments, the social presence of instructors and students remained relatively higher because they could hear, respond, and work with other participants in a real-time manner, creating a comparable sense of community and authenticity of learning to the in person learning environment. In this way, the engagement strategies utilized

by instructors were more focused on small-scale discussion and team assignments instead of lecture-style teaching, giving more accessible and engaged opportunities for students to learn and work together. Some instructors chose to provide clear guidance for students to follow, while others provided a more open-ended environment for students to engage as they would. Both approaches had their own advantages and disadvantages to consider, but they would provide a solution to those engagement challenges.

For asynchronous online learning, on the other hand, the finding In Part 2 of the research, instructors of TO101 utilized a multitude of strategies to increase engagement among students (e.g., introduction sections, small-group discussions, and "engagement quota"), and they also remained active by commenting on student-generated content or holding synchronous opportunities as much as possible. Those actions should provide different ways of engagement for students to sustain, and by design, it would help the engagement remain at a constant level throughout the workshop. However, instructors' effort was not effective in dealing with participants' lack of self-efficacy as they gradually lost interest or time dedicated to completing the course. The lack of high-level social interaction adversely affected participants' dedication to be engaged in the asynchronous classroom, which proved Lim et al.'s (2021) argument about the importance of social presence and self-efficacy in the online learning environment. Additionally, the lack of social presence and interaction became a greater issue for instructors to promote engagement within the learning environment.

Unlike synchronous online courses where check-ins are more frequent, TO101 only had one dedicated check-in throughout the entirety of each workshop. Although this design choice provided an accessible starting point for the extensive engagement between participants, it

compromised numerous opportunities for participants to get prepared and familiar with other participants throughout the duration of both workshops. From the Findings, an argument can be made that due to the different classroom design, Summer 2022 cohort had a relatively better engagement strategy that participants had a chance to know each other in a smaller group before merging into a larger group, so they would feel more comfortable to discuss with people they know. However, this effect was later deemed insignificant to maintaining continuous engagement asynchronously – the lack of time dedication and obligation for participants to spend more time on this workshop, but it could interfere with the connection and engagement between different participants and instructors. In order to discover what kinds of social presence could positively influence the engagement in the asynchronous online learning environment, more studies should be conducted in discovering how different methods and approaches of social interaction are deemed most effective to engage students in asynchronous learning.

As I hoped to see some unique classroom design that would differentiate between online learning and in-person learning, all the available data is not sufficient in proving that instructional design could also help to maintain effective learning engagement in online learning. For both synchronous and asynchronous online courses, the class structures were highly similar as they used the "reading -> pre-class assignment -> classroom activities -> post-class assignment" model that is identical to most other classes in UW. In Part 2 of this research, some participants also mentioned that they returned to the lecture model for their online courses as they could not provide a class structure that appropriated the benefits of online learning to the fullest. Although technology did play some role in creating nuanced engagement methods and contents for synchronous learning, the foundational idea was continued from the traditional seminar design

where small-group discussion was prevalent in higher education classrooms. Some arguments can be made about utilizing LMS to facilitate asynchronous learning and engagement, but the same LMS has been used by both in-person and synchronous online courses at UW without any issues. Both students and instructors were accustomed to the LMS for the learning process before the pandemic, but they failed to recognize that LMS could be utilized as an extension of classroom engagement instead of a place for submitting homework or sharing resources. With all the available resources for designing courses that suit online learning modalities, future studies could determine the effectiveness of those strategies in promoting, maintaining, and measuring students' classroom engagement more extensively.

Overall, this research shed light on the current developments of online learning courses at UW through the perspectives of students, faculty, and staff members, and this research could be a reference for future research and explorations in determining the best methods and strategies for building an engaging, effective online learning environment. To create a more engaging online learning environment, I suggest universities:

- Conduct a systematic review of the current online courses in terms of three engagement in a classroom (learner-learner, learner-instructor, and learner-content), and create an instructor-led online curriculum committee that provide necessary training, supports, and evaluation about online classroom engagement;
- Emphasize the importance of students' learning experience and faculty's teaching experience in the online learning classroom, and follow this mentality to develop ways of engagements that are more suitable or unique to the online learning environment;

- Make significant and differentiating changes in the online course design that focus on the technology integration, the social presence of instructor/student, and accessibility of contents;
- Provide training for teachers in better-utilizing technology and digital resources to enhance their teaching, especially in the online environment.
- Help students understand and improve their self-efficacy to actively participate in the online learning environment.

## Limitations of the Research

Looking back on the research, I found several improvements that can increase this research's current accuracy in numerous ways. At first, the timing for the study was relatively short in generating a large amount of data as only a limited number of survey participants were recorded, so the data was not enough to produce a more significant result or stronger correlation, even though the data provided the theoretical foundations for the other parts of this research. On the other hand, the participant experience from Part 1 of this research was limited to the perspectives from College of Education where the subject matter is more conceptual and theoretical, therefore it cannot provide reference for classes that require hands-on experiences or project-based learning, such as lab experiments or art studios. If more data from the quantitative stage can be obtained from students from other majors, more themes could be analyzed and discovered about the engagement trend in online learning.

Secondly, this research still requires more variety in data collection to generate a more comprehensive review of the online classroom engagement at UW. For example, the course evaluation or the online course design instruction from the University of Washington can hugely

contribute to proving and analyzing the general reception about overall or specific online courses, but I did not obtain such information to create a theoretical basis for assessing the classroom design from an established standard, or there was a lack of evaluation from most student participants of the online learning. Another way to address this problem is to present or research about UW faculty's opinion and comment about synchronous learning environment, which would greatly benefit the context, findings, and analysis in the Part 1. Or, student's voices regarding asynchronous online learning would also help Part 2 to be more comprehensive.

Thirdly, the research participants had a strong tendency toward in-person instead of online learning, so their comments and thoughts would have biased judgment about the idea of online learning, despite generally positive reactions toward the temporal implementation of it. The result of the research could be drastically different if students from online degree programs are included. On the other hand, there is no examination of the change in students' academic performance during and after the ERT of the COVID-19 pandemic, therefore the research cannot address how the new learning modality could affect the general academic quality at UW.

The last limitation of this research is related to the ERT itself. Because of the temporary nature of ERT, both students, instructors, and school administrators would be less demanding about how to improve ERT as far as it could satisfy the fundamental learning goal for all parties. As most courses returned to in-person classrooms after the Spring 2022 quarter, this kind of mentality could influence participants of this research as they needed to recall their experience with ERT instead of actively participating and experiencing it, hindering the effectiveness of this mixed-methods research. This research could benefit from additional data collection of online courses administered in academic quarters after Summer 2022.

Although the above factors will add valuable information to this research, this research is not addressing how the technological accessibility of online learning could interfere with the classroom engagement. As online learning heavily relies on the infrastructure of Internet and digital equipment, having outdated or inadequate technology access can be detrimental to the effective online learning engagement. Although the survey takers expressed a slightly negative concern over the technology accessibility of their online learning (M = 4.375 while the perfect neutral will be M = 5. 00), there seems to be not representative due to the lack of sample size and additional data could support this phenomenon. On the other hand, the influence of technology accessibility in synchronous online learning can be different from asynchronous online learning due to the lesser need of real-time communication, therefore it cannot imply the degree of interference to the effective online learning engagement.

## Conclusion

While discussing the benefits and drawbacks of online learning, we need to establish the bottom line that the discussion of online learning at the higher education level in this paper is based on the observation throughout years of online learning and COVID-19's ERT, but this paper could also inform a similar experience among students and faculty in other higher institutions when ERT was utilized during the same time period. The research acknowledges that many socio-economic problems hinder the effectiveness of online learning for underprivileged students in some developing countries, which would make online learning remaining as a novelty service for those who are willing to afford it as the main learning modality (Mahdy & Sayed, 2022; Ndzinisa & Dlamini, 2022). This study calls for an urge of more research, studies, and experiments to establish a conceptual framework for improving online learning, turning it into an effective

learning method for all students who utilize this learning modality at some point in their educational careers. Perspectives provided by UW students and faculty will provide insightful refence for the future explorations as well. In fact, when looking at the recommendations for a better classroom engagement, there are some similarities to the way instructors build an effective, engaging in-person instruction as well. It is not hard to start thinking about those strategies to create an online classroom that is engaging and equally effective to teach students.

It is undeniable that traditional higher education models are crucial in accumulating knowledge, faculty, facilities, and other educational resources in a complete package, but some of those qualities are transferable to online learning, helping students and instructors to have more flexibility to learn. In thinking about the general decreased academic performance of U.S. students during the COVID-19 remote learning (Basith et al., 2020) and the lack of focus on training teachers with remote learning in mind (Paliwal & Singh, 2021), I believe it is time to think about how we can turn online education into an effective learning model that could positively impact students' learning experiences and achievements. No sensible educators and teachers want to see the aftermath of COVID-19 ERT happen once again, so we should get more prepared for the future of our later generations.

- **END OF THESIS** -

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# Appendix I. Consent Form for Quantitative Research - Part 1

The topic of this research aims to get a comprehensive view of how students and instructors think about "effective online engagement" in participating in an online classroom, and this questionnaire consists of a mix of qualitative and quantitative questions that ask you about your opinion about online courses. There will be three sections in total:

- Section 1: Your personal information and experience at UW.
- Section 2: Your experience with online courses.
- Section 3: Your opinion on online learning.

It will take approximately 5-6 minutes to complete this questionnaire, but you have unlimited time to complete it if you wish to elaborate on some questions. Please be mindful that you will reflect on your general experience about your online learning experience at the University of Washington, but please feel free to add details to your responses if you wish to use your experience before participating at UW or need a reference to support your response.

Your response will be only available to me, the sole researcher on this project, and your personal information will not be leaked by any method or used in any future research by me. You can request a copy of your response as a record and authorize me to use your real identity/pseudonym to appear in the research report. Your participation is absolutely voluntary, and you can stop answering this questionnaire at any time for any reason. I will avoid any incomplete questionnaire when a participant chooses to quit. The data collection of this questionnaire will stop on June 30th at 11:59 pm PST and late submissions will not be counted.

I hope this Form of Consent can answer most of your questions about this questionnaire, but if you have any questions regarding this questionnaire or wish to know how your response will be used in my research, please contact me at yuefes@uw.edu. I may not give you all the information you need, but I will try my best to disclose things you may be interested in.

Please read through this statement before answering the following question: **"By participating in this research, I consent that the researcher, Yuefeng "Tony" Shi, has provided me with a description of the research, his action after receiving my response, and my right to participate in this research. I have given enough time to contact and ask any questions before taking this questionnaire, and I agree to participate in this research with my honest opinion."**

**I agree to participate in this research. ___Yes ___No**

**What is your preference over your presentation in this research?**

**___ Completely Anonymous**

**___ Anonymous but with a random pseudonym**

**___ My real/preferred name - if you select this one, please write your name in "Other".**

**Other:_____**

# Appendix II. Survey Questionnaire

*(The presentation of original version is edited for the publication)*

1. **What is your current Degree?**

□Bachelor – Freshman □Bachelor – Sophomore □Bachelor – Junior □Bachelor – Senior
□Graduate – First year □Graduate – Second Year □Post-graduate or Doctoral
□I am an instructor

2. **What is your current department and major?**

Answer: _____

3. **How many online classes are you studying/teaching this quarter?**

□0 □1 □2 □3 □4 □More than 5

4. **Which quarter did you have your first fully online class at UW?**

□Before Spring 2020 □Between Spring 2020 – Spring 2021
□Between Spring 2021 – Spring 2022 □I do not have any fully online classes yet.

5. **How would you rate the overall online classroom engagement from this class?**

1 2 3 4 5 6 7 8 9 10
Not engaging at all Very engaging

**What was your reasoning for this rating?**

Answer: _____

6. **Please rate the following statement according to your experience <u>in this class</u>.**

*i. I prefer online learning more than in-person learning for this class.*

1 2 3 4 5 6 7 8 9 10
Not true at all Very True

*ii. I am connected with my classmates all the time.*

1 2 3 4 5 6 7 8 9 10
Not true at all Very True

*iii. I can get/maintain frequent or quick feedback from other participants.*

1 2 3 4 5 6 7 8 9 10

Not true at all Very True

*iv. I am more comfortable speaking in breakout rooms during an online session.*

1 2 3 4 5 6 7 8 9 10

Not true at all Very True

*v. I have active participation in the online classroom, such as being the first one to talk, being active in the chat box, always turning on the camera, etc.*

1 2 3 4 5 6 7 8 9 10

Not true at all Very True

*vi. The instructor is using the maximum effort in maintaining the classroom atmosphere.*

1 2 3 4 5 6 7 8 9 10

Not true at all Very True

*vii. The instructor relies more on students' small-group interactions than on giving lectures.*

1 2 3 4 5 6 7 8 9 10

Not true at all Very True

*viii. The instructor is making online learning accessible to you.*

1 2 3 4 5 6 7 8 9 10

Not true at all Very True

*ix. The instructor or students have concerns over the technology for online classes.*

1 2 3 4 5 6 7 8 9 10

Not true at all Very True

*x. The instructor or students have an uninterrupted learning space for their online classes.*

1 2 3 4 5 6 7 8 9 10

Not true at all Very True

**7. In your opinion, what is/are the most joyful part(s) of this class during an online session? Select all that are applied:**

□Class-wide check-in at the beginning of the class □Class assignments □Learning contents
□Frequent breakout rooms discussion □Instructor's Lecture □Collaborative works
□Flexible rule over student's input □Flexible rule over student's participation
□Frequent feedback giving and receiving between students/instructor
□Other: _____

**8. In your opinion, what is/are things you want to see from this class during an online session? Select all that are applied:**

□Class-wide check-in at the beginning of the class □Class assignments □Learning contents

□Frequent breakout rooms discussion □Instructor's Lecture □Collaborative works
□Flexible rule over student's input □Flexible rule over student's participation
□Frequent feedback giving and receiving between students/instructor
□Other: _____

9. **What are other things you would like to share about online engagement in this class if any?**

Answer:
_____
_____

**This is the end of the survey. Thanks for your time and responses!**

# Appendix III. Consent Form for Qualitative Research - Part 1

The topic of this research aims to get a comprehensive view of how students and instructors think about "effective online engagement" in participating in an online classroom, and this interview will focus on your personal experience in the online course you have taken at UW. I will ask you about your personal information and experience at UW, your experience with online courses, and your opinion on online learning.

It will take approximately 30-45 minutes to complete this interview, but please feel free to pause the interview if you wish to take a short break. Please be mindful that you will reflect on your general experience about your online learning experience at the University of Washington, but please feel free to add details to your responses if you wish to use your experience before participating at UW or need a reference to support your response.

Your response will be only available to me, the sole researcher on this project, and your personal information will not be leaked by any method or used in any future research by me. You will not be taking any kinds of personal harm, including physically or mentally, for participating in this research. I will ask your permission to use an audio recorder to record our conversation for note-taking, and I will only use a written note to record our conversation if you do not allow me to do so. If you agree to record, you can request a copy of the interview transcript and original record for your record. You can also choose to authorize me to use your real identity/pseudonym to appear in the research report. Your participation is absolutely voluntary, and you can stop it any time for any reason.

I hope this Form of Consent can answer most of your questions about this interview, but if you have any questions regarding this research or wish to know how your response will be used in my research, please contact me at yuefes@uw.edu. I may not give you all the information you need, but I will try my best to disclose information about this research you may be interested in.

Please read through this statement before answering the following question: **"By participating in this research, I consent that the researcher, Yuefeng "Tony" Shi, has provided me with a description of the research, his action after receiving my response, and my right to participate in this research. I have given enough time to contact and ask any questions before doing this interview, and I agree to participate in this research with my honest opinion."**

**I agree to participate in this research. ___Yes ___No**

**I agree to have the audio recording. ___Yes ___No**

- **If you choose "yes" to this question, please write your email address to receive the transcript: _____**

**What is your preference over your presentation in this research?**

**___ Completely Anonymous**

**___ Anonymous but with a random pseudonym**

**___ My real/preferred name - if you select this one, please write your name in "Other".**

**Other:_____**

# Appendix IV. Interview Protocol

## Interview Question Protocol

Name of interviewee: _____ Date: _____

**Please read:**
Thank you so much for being willing to participate in this research and for having this interview opportunity with me. This interview will ask you some questions about your opinion of an effective online classroom environment, and it will take you about 30 - 45 minutes to finish this interview. If you are not feeling good about some questions, please let me know so I will skip the question to the next one. We have read through the Form of Consent together, and I have given plenty of time for you to ask any questions about this interview. Before we start, I would like to ask you if you authorize me to record our conversation through audio. By doing so, I will use the recording to produce the transcript and send you a copy of the transcript along with the audio recording. The audio recording will be destroyed once you approve the transcript. Do you allow me to record our conversation today?
Interviewee allows audio recording: Y/N

Q1. Would you mind telling me something about yourself? Such as your current degree at the University, your department, etc.

Q2. Have you ever been involved in an online course at UW?

- If so, how long have you taken/taught online courses at UW? How would you rate the online course at UW in general?

- If not, have you ever taken/taught online courses before? How long was it ago? How would you rate the online course you have taken/taught?

  (If the interviewee never took or taught an online course before, skip to Q6)

Q3. Could you describe a time when you had a great time in an online course?

- What elements, in your opinion, made it enjoyable to you?

Q4. Could you describe a time when you had a bad time in an online course?

- What elements, in your opinion, made it not enjoyable to you?

Q5. Have you ever faced technical difficulties to access online courses?

- When did it happen?
- How did you resolve the problem? Have you been able to avoid it in the future?
- Do you think either your classmates or instructor have similar issues as yours? Why?

Q6. Do you personally prefer online courses or in-person courses? Why?

- If you said “it depends”, in what instances do you prefer one over another?

Q7. In your opinion, what are the strengths and weaknesses of online courses?

- Strengths
- Weaknesses

Q8. In what ways do you see online courses will be more popular among students and instructors?

- What do we need to make it more accessible?

- If not, why do you think so?

Q9. Will you continue to take/teach online courses in the future? Why/why not?

Q10. Is there anything more you would like to add?